

REMARKS/ARGUMENTS

The specification has been amended to correct typographical errors noted therein. No new matter has been added by any of the amendments to the specification.

Claims 1-21 are pending in the present application. Claims 1-3, 5, 7-9, 11-13, 15, 17-19 and 21 were amended. No claims were added or canceled. Applicants have carefully considered the cited art and the Examiner's comments, and believe the claims patentably distinguish over the cited art and are allowable in their present form. Support for the amendments to the claims can be found, for example, on page 13, line 3 to page 14, line 11 and on page 19, lines 1-19. No new matter has been added by any of the amendments to the claims. Reconsideration of the rejection is respectfully requested in view of the above amendments and the following comments.

I. 35 U.S.C. § 101

The Examiner has rejected claim 21 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

In rejecting the claim, the Examiner states:

Claims 21 is pertained solely to a data structure without recitation of any step(s) to be performed on a computer or any process activity that ties to physical acts or data manipulation representing physical object or activities to achieve a practical application.

"Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33F.3d at 1361, 31 USPQ2d at 1760 (Claim to a data structure per se held nonstatutory.). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." See Interim Guidelines on 35 USC 101, Annex IV (a): Functional Descriptive Material.

Office Action dated April 23, 2007, page 2.

By the present Amendment, claim 21 has been amended to recite "A computer program product, comprising a computer readable medium storing instructions for intelligent audio output control, the computer program product comprising..." Applicants believe this language clearly defines a structural and functional interrelationship between the data structure and computer software and hardware components

which permit the data structure's functionality to be realized, and that the claim now fully satisfies the requirements of 35 U.S.C. § 101 in all respects.

Therefore, the rejection of claim 21 under 35 U.S.C. § 101 has been overcome.

II. 35 U.S.C. § 102, Anticipation

The Examiner has rejected claims 1-2, 4, 11, 12-14 and 21 under 35 U.S.C. § 102(e) as being anticipated by Boyd, US 6,968,063 82 (hereinafter "Boyd"). This rejection is respectfully traversed.

In rejecting the claims, the Examiner states with respect to claim 1:

Re claim 1, Boyd disclose a method for intelligent audio output control, the method comprising: obtaining values for a set of input parameters ("fig. 2-5 (20a, 20b) -detectors: col. 2 line. 27-30") and obtaining an audio output parameter prediction based on the values for the set of input parameters ("fig. 2-5 (30) :col.3 line 27-30"); and adjusting an audio output parameter for an audio system using the audio output parameter prediction ("fig. 2-5(40) :col.2 line 57-59").

Office Action dated April 23, 2007, page 3.

Claim 1, as amended herein is as follows:

1. A method for intelligent audio output control, the method comprising:
receiving values for a set of input parameters;
receiving stored historical data, wherein the stored historical data comprises stored values for the set of input parameters and a stored audio output parameter value associated with the stored values for the set of input parameters;
predicting a value for an audio output parameter of an audio system based on the received values for the set of input parameters and the stored historical data; and
adjusting the audio output parameter for the audio system using the predicted value for the audio output parameter.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). In this case each and every feature of the presently claimed invention is not identically shown in Boyd,

arranged as they are in the claims. In particular, with respect to claim 1, Boyd does not disclose or suggest “predicting a value for an audio output parameter of an audio system based on the received values for the set of input parameters and the stored historical data” or “adjusting an audio output parameter for the audio system using the predicted value for the audio output parameter.”

Boyd is directed to a mechanism for controlling sounds emitted by a gaming machine, such as a slot machine, in a casino. More particularly, Boyd describes a mechanism for detecting an ambient noise level adjacent a gaming machine and for adjusting a sound output of the machine in relation to the ambient noise level (see Col. 2, lines 4-7 of Boyd).

In rejecting claim 1, the Examiner refers to column 3, lines 27-30 as disclosing “obtaining an audio output parameter prediction based on the values for the set of input parameters” as was originally recited in claim 1. Applicants respectfully disagree. Column 3, lines 27-34 of Boyd is as follows:

After an ambient noise level is detected for the vicinity of gaming machine 100, the detected ambient noise level can be compared to values in a reference table of ambient noise level:adjustment values. The volume of the gaming sound pre-amp signal 13 or gaming sound amplified signal 15 is then adjusted in accordance with a value in the reference table to yield an appropriately adjusted gaming sound output.

As is clearly recited in the above paragraph, Boyd discloses detecting an ambient noise level, comparing the detected ambient noise level to values stored in a reference table of ambient noise levels:adjustment values, and then adjusting the sound in accordance with a value in the reference table. The mechanism in Boyd never predicts “a value for an audio output parameter of an audio system based on the received values for the set of input parameters and the stored historical data” nor does it adjust “the audio output parameter for the audio system using the predicted value for the audio output parameter.” Boyd makes no predictions of any kind. Boyd simply provides a look-up table of ambient noise levels:adjustment values and makes a selection from the table in order to adjust the sound of the gaming machine. Boyd, accordingly, does not disclose or suggest “predicting a value for an audio output parameter of an audio system based on the received values for the set of input parameters and the stored historical data” or “adjusting the audio output parameter for the audio system using the predicted value for the audio output parameter” as recited in amended claim 1, and does not anticipate amended claim 1.

Independent claims 11 and 21 have been amended in a similar manner as claim 1, and are also not anticipated by Boyd for similar reasons as discussed above with respect to claim 1.

Claims 2 and 4 depend from and further restrict claim 1, and claims 12 and 14 depend from and further restrict claim 11. These claims are also not anticipated by Boyd, at least by virtue of their dependency (in this regard, although the Office Action indicates that claims 12-14 are rejected as

anticipated by Boyd, Applicants assume that the Examiner did not intend to include claim 13 in this rejection).

Therefore, the rejection of claims 1-2, 4, 11, 12-14, 21 under 35 U.S.C. § 102(e) has been overcome.

III. 35 U.S.C. § 103, Obviousness (Claims 3 and 13)

The Examiner has rejected claims 3 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Boyd and further in view of Cairns, US 2002/0097884 A1 (hereinafter "Cairns"). This rejection is respectfully traversed.

In rejecting the claims, the Examiner states:

Re claim 3, the method of claim 1, However, Boyd fail to disclose of the further limitation wherein the set of input parameters includes at least one of speed, whether a window is open or closed, interior or exterior noise levels, whether a convertible top is up or down, windshield wiper use, windshield wiper level, whether headlights are on, and global positioning system (GPS) coordinates. But, Cairns disclose a system in which he further disclose of the limitations wherein the set of input parameters includes at least one of speed, whether a window is open or closed, and global positioning system (GPS) coordinates ("page 1 [0041] ; page 3 [0019L]") for the purpose of having a noise reduction algorithm which is dependent on the vehicle conditions as detected for used in a vehicle. Thus, taking the combined teaching of Boyd and Cairns as a whole, it would have been obvious for one skill in the art to modify Boyd by incorporating the limitations wherein the set of input parameters includes at least one of speed, whether a window is open or closed, and global positioning system (GPS) coordinates for the purpose of having a noise reduction algorithm which is dependent on the vehicle conditions as detected for used in a vehicle.

Re claim 13, has been analyzed and rejected with respect to claim 3.

Office Action dated April 23, 2007, pages 5-6.

Initially, claims 3 and 13 depend from and further restrict claims 1 and 11, respectively. Cairns does not supply the deficiencies in Boyd as described above; and, accordingly, claims 3 and 13 patentably distinguish over Boyd in view Cairns, at least by virtue of their dependency.

In addition, Cairns is directed to supplying parameters to a noise reduction algorithm based on different vehicle conditions. More particularly, Cairns is directed to reducing the amount of background noise included in signals transmitted by devices such as cellular phones (see, for example, paragraphs [0001] and [0002] in Cairns.

Boyd, on the other hand, is directed to a mechanism for adjusting sounds produced by a gaming machine in a casino as a function of ambient (background) noise in the casino. Boyd is unrelated to

reducing background noise, and certainly would have no reason to reduce background noise, or to adjust any other sound for that matter, based on input parameters such as vehicle speed, whether a vehicle window is open or closed, windshield wiper use, whether headlights are on or any other of the items specified in claims 3 and 13.

Applicants respectfully submit, accordingly, that it would not be obvious to one of ordinary skill in the art to modify Boyd to adjust the sound produced by a gaming machine in a casino based on teachings in Cairns, and that claims 3 and 13 patentably distinguish over Boyd in view of Cairns for this reason as well.

Therefore, the rejection of claims 3 and 13 under 35 U.S.C. § 35 U.S.C. § 103(a) has been overcome.

IV. **35 U.S.C. § 103, Obviousness (Claims 5-8, 10, 15-18 and 20)**

The Examiner has rejected claims 5-8, 10, 15-18 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Boyd and further in view of Heckel, US2002/0137995 (hereinafter "Heckel"). This rejection is respectfully traversed.

The Examiner states:

Re claim 5, the method of claim 1, wherein the step of obtaining an audio output parameter prediction includes: receiving a plurality of data and wherein each data includes a value for each of the set of input parameters and an audio output parameter value ("fig. 1-5/30; col. 3 line 27-30/ data of input parameters (detected noise): output parameter (adjustment output)"). But, Boyd fail to disclose of the data point and performing statistical analysis on the plurality of data points to determine an audio output parameter prediction. However, Heckel disclose an improved system in which he disclose of the data point and performing statistical analysis on the plurality of data points to determine an audio output parameter prediction ("page 1/0010 line 12-15; page 2/0009 line 1-6: input parameter (ratio value) to predict output parameter (threshold value)") for the purpose of detecting and responding to unreliable signal conditions associated with a sensor. Thus, taking the combined teaching of Boyd and Heckel as a whole, it would have been obvious for one of the ordinary skill in the art to modify Boyd by incorporating the data point and performing statistical analysis on the plurality of data points to determine an audio output parameter prediction for the purpose of detecting and responding to unreliable signal conditions associated with a sensor.

Claims 5-8, 10, 15-18 and 20 depend from and further restrict one of independent claims 1 and 11. Heckel does not supply the deficiencies in Boyd as described above; and, accordingly, the claims patentably distinguish over Boyd in view of Heckel, at least by virtue of their dependency.

In addition, Heckel relates to a system for detecting sensor off conditions in a pulse oximeter. Heckel relates to detecting light transmitted through or reflected from a patient's appendage, and includes detectors for receiving optical signals (see, for example, paragraph [0021] in Heckel). Heckel is not related to audio parameters and does not, in any way, disclose or suggest data points which comprise a value for a set of input parameters and an audio output parameter value associated with the set of input parameters, or performing statistical analysis on a plurality of data points to predict the value for the audio output parameter as indicated by the Examiner. Neither in the paragraphs cited by the Examiner nor anywhere else does Heckel disclose or relate to performing statistical analysis on data points to predict a value for an audio output parameter. Heckel is not related to audio outputs and does not disclose or suggest predicting a value for an audio output parameter by statistical analysis or in any other manner. Accordingly, claim 5 and corresponding claim 15 are not obvious over Boyd in view of Heckel and are allowable thereover in their present form.

For similar reasons, claims 6-8, 10, 16-18 and 20 are also not unpatentable over Boyd in view of Heckel and patentably distinguish over the references in their present form.

Therefore, the rejection of claims 5-8, 10, 15-18, 20 under 35 U.S.C. § 103(a) has been overcome.

V. 35 U.S.C. § 103, Obviousness (Claims 9 and 19)

The Examiner has rejected claims 9 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Boyd and further in view of Chee et al., US 2003/0157504 A1 (hereinafter "Chee"). This rejection is respectfully traversed.

The Examiner states:

Re claim 9, the method of claim 1, However, Boyd fail to disclose of the further limitation of wherein the step of obtaining an audio output parameter prediction includes: identifying a closest data point within a plurality of historical data points; and setting the audio output parameter prediction to an audio output parameter value of the closest data point. But, Chee et al. disclose a system for multiplexing in which when doing statistical analysis outlier he disclose of the similar technique of identifying a closest data point within a plurality of historical data points; and setting the audio output parameter prediction to an audio output parameter value of the 'closest data point ("page 21 [0222], page 22 [0227] processor") for the purpose of determining the presence of a target analyte in a sample. Thus, taking the combined teaching of Boyd and now the similar technique of Chee et al. as a whole, it would have been obvious for one or ordinary skill in the art in performing statistical analysis by incorporating the technique of identifying a closest data point within a plurality of historical data points; and setting the audio output parameter prediction to an audio output

parameter value of the closest data point for the purpose of determining the presence of a target analyte in a sample.

Re claim 19, has been analyzed and rejected with respect to claim 9 (see details in claim 9 with processor).

Office Action dated April 23, 2007, pages 11-12.

Claims 9 and 19 depend from and further restrict claims 1 and 11, respectively. Chee does not supply the deficiencies in Boyd as described above. Therefore, claims 9 and 19 patentably distinguish over the references, at least by virtue of their dependency.

Furthermore, Chee relates to decoding microsphere array sensors. Chee is unrelated to obtaining an audio output parameter and certainly does not disclose or suggest "setting the predicted value for the audio output parameter to an audio output parameter value of the closest data point" as recited in claims 9 and 19. Therefore, claims 9 and 19 also patentably distinguish over Boyd in view of Chee for this reason as well.

Therefore, the rejection of claims 9 and 19 under 35 U.S.C. § 103(a) has been overcome.

VI. Conclusion

For at least all the above reasons, this application is now believed to be in condition for allowance, and it is respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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